

51. An isolated polynucleotide encoding a polypeptide, wherein said polypeptide has elongase activity and comprises an amino acid sequence which is at least 70% similar to the amino acid sequence set forth in SEQ ID NO:64.

52. An isolated polynucleotide encoding a polypeptide, wherein said polypeptide has elongase activity and comprises an amino acid sequence which is at least 60% identical to the amino acid sequence set forth in SEQ ID NO:63.

53. An isolated polynucleotide encoding a polypeptide, wherein said polypeptide has elongase activity and comprises an amino acid sequence which is at least 60% identical to the amino acid sequence set forth in SEQ ID NO:64.

Please replace claims 1, 3-5, 8, 15, 23, 24, 47 and 49 with the following amended claims having the same numbering:

1. (amended) An isolated polynucleotide comprising or completely complementary to the nucleotide sequence of SEQ ID NO:5.

3. (amended) The isolated polynucleotide of claim 1,
wherein said isolated polynucleotide encodes a
functionally active elongase which utilizes a
polyunsaturated fatty acid as a substrate.

4. (amended) The isolated polynucleotide of claim 1,
wherein said isolated polynucleotide is derived from a
mammal.

5. (amended) The isolated polynucleotide of claim 4,
wherein said isolated polynucleotide is derived from a
mouse.

6. (amended) A method of producing an elongase enzyme
comprising the steps of:

- a) isolating a polynucleotide comprising the
nucleotide sequence of SEQ ID NO:5 or SEQ ID NO:6;
- b) constructing a vector comprising said
polynucleotide of step (a) operably linked to a
promoter; and
- c) introducing said vector into a host cell for a time
and under conditions sufficient for expression of said
elongase enzyme.

15. (amended) A vector comprising a polynucleotide operably linked to a promoter, wherein said polynucleotide comprises the nucleotide sequence of SEQ ID NO:5.

23. (amended) A plant cell, plant or plant tissue comprising the vector of claim 15, wherein expression of said polynucleotide of said vector results in production of a polyunsaturated fatty acid by said plant cell, plant or plant tissue.

24. (amended) The plant cell, plant or plant tissue of claim 23, wherein said polyunsaturated fatty acid is selected from the group consisting of arachidonic acid (AA), adrenic acid (ADA), γ -linoleic acid (GLA) and stearidonic acid (STA).

47. (amended) An isolated polynucleotide comprising or completely complementary to the nucleotide sequence of SEQ ID NO:6.

49. (amended) A purified protein encoded by said polynucleotide of claim 47.